REMARKS

Claims 52 to 54, 58, 60, 61, 63 to 65, 67 to 72, and 76 are pending in this application. Claims 1-51 were canceled by previous amendments. Applicants propose to cancel claims 55 to 57, 59, 62, 66, and 73 to 75 without prejudice, to amend claims 52 to 54, and to add new claims 77 to 79 in this amendment. Support for the amendments to claims 52 to 54 can be found in the specification, e.g., at page 11, lines 31-35. Support for new claims 77 to 79 can be found in claims 52 to 54. These amendments would add no new matter. Applicants believe that the amendments herein would place the claims in condition for allowance or in better form for appeal, and thus request that the Examiner enter the proposed amendments.

Applicants acknowledge and thank the Examiner for her withdrawal of the objection to the declaration, withdrawal of the objection to the claims for encompassing non-elected subject matter, acknowledgement of the new title, withdrawal of the rejection of the claims under 35 U.S.C. § 101, acknowledgement of applicants' priority date of June 24, 1998, and withdrawal of the rejection of the claims over U.S. Patent No. 6,576,644. Applicants also acknowledge and thank the Examiner for her indication that claims 60, 61, 63, 64, 69, 70, and 76 are allowable.

35 U.S.C. § 112, First Paragraph

Claims 52 to 59, 62, 65 to 68, and 71 to 75 have been rejected as allegedly not enabling for use of variants of the polypeptides disclosed. The Office Action asserts that the application does not enable one of skill in the art to use variants of the polypeptides for the disclosed uses. Applicants respectfully disagree.

The Office Action states that one would not use variants of the polypeptides for the disclosed utilities of identifying binding partners or identifying/sorting of hemopoietic cells. In addition, the specification also discloses the use of soluble NR8 proteins as decoy receptors. Applicants submit that polypeptide variants could be used for any of these utilities. For example, polypeptide variants with similar binding activity as the non-variant polypeptides can be used to identify the binding partners. The specification predicts domains of NR8 in which insertions, deletions, or substitution would not be predicted to affect binding, including the intracellular

region and a Box 1 motif (page 4). Similar variants that do not affect binding could be useful as soluble decoy receptors. Additionally, it is common practice to add a purification sequence (e.g., a poly-histidine or FLAG tag) to purify a polypeptide for binding studies. Many of these purification sequences are ten amino acids or fewer, the equivalent of an insertion of up to ten amino acids. Examples of peptide purification sequences are given in the specification at page 11. Therefore, the specification enables one of skill in the art to use the claimed polypeptides.

Furthermore, variant polypeptides could be used to raise antibodies for identification or sorting of hemopoietic cells. For example, polyclonal antibodies raised against a variant polypeptide will cross-react significantly with the original polypeptide, and will potentially bind differently only at the site of variation. The Office Action states that it is not "accepted practice in the art to use compounds other than the compound to which the binding agent is desired to bind, to make or identify said binding agent." However, one of skill in the art would accept that polypeptides with similar or identical binding activity, e.g., to binding partners such as ligands or antibodies, can be used in a similar manner to make or identify binding agents.

Also, the Office Action alleges that it would require undue experimentation to produce the claimed variant polypeptides with the recited hemopoietic activity. Applicants respectfully disagree. Testing of variant polypeptides for hemopoietic factor receptor activity is routine, and can be performed even without knowledge of the specific hemopoietic factor to which the receptor binds. For example, the specification, in Example 6, describes just such a test for whether a particular receptor fragment has activity. In brief, a chimeric receptor is produced comprising the extracellular portion of the putative hemopoietic factor receptor (which binds the hemopoietic factor), and the intracellular portion of IL-3 receptor (which is responsible for signaling). This chimeric receptor is expressed in IL-3 dependent cells, and will respond to the NR8 ligand (even in a crude mixtures) by inducing survival or proliferation of the cells in the absence of IL-3. This method can even be used for selection of variant NR8 polypeptides with hemopoietic activity, since only those cells that express an NR8 variant that can bind to ligand will survive and proliferate. Since this type of selection is merely routine, and because the specification adequately describes how to otherwise make and use the claimed variant polypeptides, the pending claims are enabled for the claimed variant polypeptides, which must

exhibit at least a 95 percent homology, as defined in the application, to the full length sequence recited in the claims.

As a result of these arguments, the proposed cancellation of claims 55 to 57, 59, 62, 66, and 73 to 75, and the proposed amendments to claims 52 to 54, applicants respectfully request that the Examiner reconsider and withdraw the rejection based on an alleged lack of enablement of pending claims.

Claims 52 to 54, 58, 65, 67, 68, 71, and 72 have been rejected as allegedly incorporating new matter that was not in the specification as originally filed. The Office Action states that there is no basis in the specification for the limitation "one to ten," as applied to amino acid deletions, substitutions, or insertions. Applicants respectfully disagree, but have slightly modified the language in claims 52 to 54 to read "up to ten." Support for the limitation "up to ten," as applied to amino acid deletions, substitutions, or insertions can be found in the specification by combining the limitations at page 5, lines 10 to 25 (e.g., "a modified amino acid sequence ... in which one or more amino acids have been deleted, added, and/or substituted"), with the limitations at page 10, lines 10 to 22 (e.g., "one in which one or two more, preferably, two to 30, more preferably, two to ten amino acids" are deleted, added, or substituted). The combination of "one or more" amino acids with "one or ... two to ten" amino acids provides the claimed limitation of "up to ten." Therefore, these claims contain no new matter. Applicants respectfully request reconsideration withdrawal of the rejection.

Claims 55 to 57, 59, 66, and 73 to 75 have been rejected as allegedly failing to comply with the written description requirement. Applicants have canceled claims 55 to 57, 59, 66, and 73 to 75 without prejudice. Thus, the rejection of these claims is moot.

35 U.S.C. § 112, Second Paragraph

Claims 55 to 57, 59, 66, and 73 to 75 have been rejected as allegedly indefinite. Applicants have canceled these claims without prejudice, rendering the rejection moot.

35 U.S.C. § 102(e)

Claims 55 to 57, 59, 62 to 66, and 73 to 75 have been rejected as allegedly anticipated by Donaldson et al., U.S. Patent No. 6,057,128. Given that claims 63 and 64 are listed on page one

of the Office Action as being allowed, applicants believe that the Examiner did not intend to include claims 63 to 65 in this rejection over Donaldson, but that they were included due to a typographical error. The rejection was based on the identity of Donaldson's nucleic acids and proteins with the variants obtained by hybridization in the present invention. However, none of claims 63 to 65 recites variants by hybridization. Thus, applicants request confirmation from the Examiner that Donaldson does not anticipate claims 63 to 65.

The remaining claims rejected over Donaldson, claims 55 to 57, 59, 62, 66, and 73 to 75, have been canceled in this amendment. Therefore, this rejection is moot.

Applicants respectfully request that the Examiner reconsider and withdraw the rejections of pending claims 52 to 54, 58, 60, 61, 63 to 65, 67 to 72, and 76. Applicants enclose a Petition for Extension of Time and a Notice of Appeal, along with the required fees. Please apply any other charges or credits to deposit account 06-1050, referencing Attorney Docket No. 12660-002001.

Respectfully submitted,

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